



UBC REPORTS

3 Medical ethics

4 Eye doctor in Africa

5 2010 dental care

6 Creative writing

7 Biodiversity

No Pulp Fiction: Engineers see major paper mill savings with new rotor technology

BY BRIAN LIN with files from ERINROSE HANDY

A partnership between UBC, government and the pulp and paper industry has resulted in the development of three high efficiency pulp screen rotors that produce high quality paper while reducing almost half the energy required.

“There are currently 300 pulp screens in British Columbia’s 20 pulp and paper mills,” says UBC Mechanical Engineering Assoc. Prof. James Olson. “The industry consumes almost 20 per cent of all the electricity produced in the province and pulp screening is an energy intensive operation in that process.”

Pulp screens work somewhat like the spin cycle in a household washing machine by rotating at high speeds and forcing pulp through narrow openings in the screen. Pulp screens in B.C. alone consume 300 Gigawatt Hours per year at an estimated cost of \$16 million – or enough energy to light up 15,000 homes.

Olson and fellow UBC

continued on page 3



Prof. James Olson looks to a future of energy-efficient pulp and paper-making.

PHOTO: MARTIN DEE

Preserving the bounty of breadfruit

BY RAINA DUCKLOW and BUD MORTENSON

Any way you slice it, breadfruit is a big deal.

A traditional Polynesian crop grown throughout the Pacific for more than 3,000 years, breadfruit’s diversity is now declining – some varieties have already disappeared – due to damage from tropical cyclones, climate change, and loss of cultural knowledge.

Susan Murch, Canada Research Chair in Natural Products Chemistry at UBC Okanagan, hopes to not only preserve breadfruit from further decline, she’s working on ways to make it much more abundant – improving food security in tropical regions and creating new food products for North American tables.

“Every four seconds someone in the tropics dies of hunger. It is one of the biggest food security issues in the world at the moment,” says Murch. “Breadfruit is a tree that most people in North America have not heard of, but has huge value for food security. A single

tree can produce 150 to 200 kilograms of food per year. But distribution of breadfruit to feed people who are starving has been limited by difficulties

propagating and transporting the trees.”

Breadfruit, which reproduces through suckers or root cuttings, doesn’t do well in transport.



PHOTO: SUSAN MURCH

Bread is made from flour, but Susan Murch hopes to turn breadfruit into flour – gluten-free and high in protein and vitamins.

Murch points to some infamous history that links the breadfruit tree to the 1789 mutiny on the HMS Bounty.

“The whole point of the Bounty’s journey was to go out to Oceania, to collect trees and bring them back to produce food in the Caribbean,” she says. “Part of the reason for the mutiny was that the ship’s fresh water was being used for the breadfruit trees, rather than allowing the sailors to drink it.”

More than 200 years later, breadfruit continues to be a prized source of high-energy food, but it remains hard to reproduce and international quarantine requirements on root materials make distribution difficult. Only now is science beginning to make this invaluable tree easier to reproduce and send where it’s most needed.

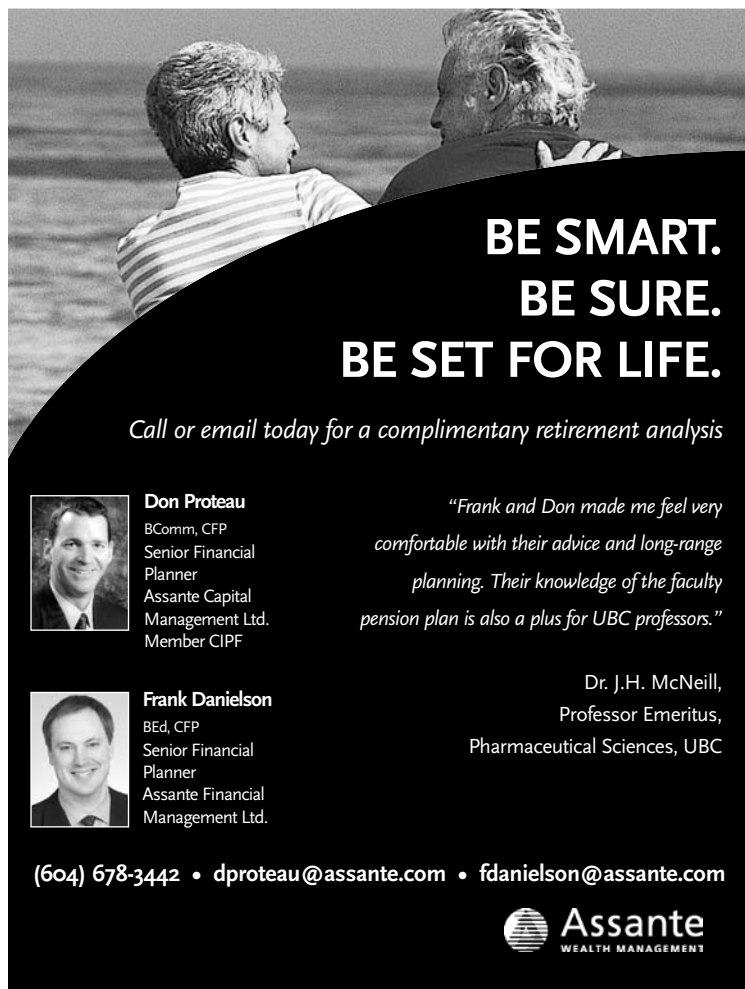
At a field station at the National Tropical Botanical Garden (NTBG) in Maui, Hawaii, Murch is working with a collection of 230 70-foot-tall breadfruit (*Artocarpus altilis*) trees. The collection was established in the 1970s

and 1980s by Diane Ragone, a world expert on breadfruit, and each tree is a unique variety collected from a different Pacific island, with different leaf shapes, nutritional composition and environmental requirements. It’s an important and rare collection, vulnerable to damage from a natural disaster such as one of the Pacific’s great cyclones.

Murch’s team is eagerly developing new ways to maintain, conserve, mass propagate, and distribute the most beneficial traditional varieties using modern techniques of plant tissue culture and biotechnology.

“My work is all about the nutrition in breadfruit, and the distribution of breadfruit,” Murch says, explaining that in Hawaii and at her UBC Okanagan lab, her team has learned how to grow the trees in bioreactors. Though many North American food crops are produced this way, Murch is the first to make it work with breadfruit, and this new way of reproducing breadfruit trees is

continued on page 4



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IN THE NEWS

Highlights of UBC media coverage in November 2008. COMPILED BY SEAN SULLIVAN

One-third of all fish pulled from oceans used in animal feed

A nine-year UBC study has found about one-third of all commercially harvested fish taken from the ocean is fed to farmed fish, poultry and pigs.

As reported by *Reuters*, *Scientific American*, the *National Post*, the *Canberra Times*, the *New York Times* and the *Seattle Post-Intelligencer*, so-called forage fish such as anchovies, sardines and menhaden account for 37 per cent, or 31.5 million tons, of all fish taken from the world's oceans each year.

UBC senior researcher **Jacqueline Alder** warns that the excessive harvesting of forage fish is "squandering a precious food resource for humans and disregarding the serious overfishing crisis in our oceans."

Calling for a crackdown on human trafficking

UBC legal expert **Benjamin Perrin** made international headlines after releasing statistics showing Romania, the Philippines, Moldova and China are the top-four source countries for foreign victims of human trafficking to Canada.

Perrin says despite 31 documented cases of international human trafficking in Canada over a two-year period, no one has been convicted of the crime in a Canadian court.

"We've confirmed that this problem is a reality in Canada - there are real Canadians who are exploiting these women as well as foreign traffickers exploiting these women," Perrin told *The Canadian Press*.

Metro, *Canwest News Service*, the *Edmonton Journal*, the *Toronto Sun*, *Thaindian News* and *CBC* also reported his findings.



PHOTO: MARTIN DEE

UBC law professor **Benjamin Perrin** says Canadian officials must do more to crack down on human trafficking.

Perrin also was called upon to comment on measures being taken by classifieds website Craigslist to crack down on human trafficking in the United States.

Tibetans ponder their future

As Tibetans gathered in November to discuss their future, UBC historian and professor **Tsering Shakya** was called upon for expert analysis by the *Los Angeles Times*, *TIME*, *International Herald Tribune*, the *New York Times* and Abu Dhabi's *The National*.

The shadow of China loomed over the talks, as did the Dalai Lama's mortality. The 73-year-old leader was hospitalized last month and had a gallstone removed.

"China holds all the cards," Shakya told the *Los Angeles Times*. Still, he said, "there's an urgency among Tibetans to get an agreement before the Dalai Lama is no longer among them."

UBC financial expert in high demand

As the Canadian real estate market began to dip, **Tsur Somerville**, director of the Centre for Urban Economics and Real Estate, found himself called upon to help explain the crisis to readers and viewers across Canada. Somerville was also interviewed by the *Montreal Gazette* and the *Toronto Star*.

Somerville commented on the uncertainty of Vancouver's real estate market in a *CBC Television* report, saying the decline in home values and sales won't end until economic conditions improve.

And as news leaked out that Vancouver city council secretly loaned \$100-million to bail out the developers of the 2010 Olympic village, Somerville explained the impact the bailout will have on taxpayers to the *CBC*, *Vancouver Sun* and *Vancouver Province*.

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Ethicist studies patient-physician trust

BY LORRAINE CHAN

UBC bioethicist Anita Ho is trained to resolve tough dilemmas such as end-of-life care issues for families and hospitals.

An assistant professor at UBC's W. Maurice Young Centre for Applied Ethics, Ho is also an ethicist for Providence Health Care. Each week, she attends interdisciplinary rounds at their hospitals.

Ho describes one "gut-wrenching" situation where a family insisted on tube-feeding for their father, in his 90s and at end-of-life, since he could no longer ingest solid foods.

The patient's healthcare team advised against it since liquids could leak into his lungs and trigger infection. Despite the team's good intentions, the patient's son was distrustful of the hospital's recommendation, suspecting them of withholding care.

Ho waded into this welter of charged emotions, reminding both sides to centre their decisions on the patient's wishes and best interests. A Cantonese speaker, she was able to explain the hospital's perspective to the family and listen to their concerns.

She then explained the patient's cultural and family dynamics to the healthcare team, "which is concerned primarily with medical considerations, whether a treatment will improve or worsen the patient's underlying illness."

In the end, the team reached a compromise with the family for a less invasive procedure.

These types of interactions inform Ho's research, which aims to develop an ethical framework that fosters greater trust, consistency and transparency.

"How do we provide the most ethical healthcare given the constraints we have?" asks Ho, explaining that current ethical guidelines place great emphasis on patient freedom and autonomy, evolving from previous eras when a more paternalistic model prevailed.

"Now, the idea is that no one can make decisions for the patient. Instead, physicians provide all relevant information and options, and support



PHOTO: MARTIN DEE

Bioethicist Anita Ho is researching an ethical framework that fosters greater trust and transparency in health care.

patients to decide themselves the best course of action."

But Ho says she wonders how much control patients truly have or want. Several years ago, Ho

thought best.

"I simply trusted them and didn't know how to decide on my own," recalls Ho. "Nothing I had studied or written in medical

back in Canada, she questions whether they were all necessary, or whether the specialists would have outlined all these options if she not been receiving healthcare

"Despite the current emphasis on patient autonomy, patients don't know what's going on in the system and don't usually feel comfortable challenging the authority of medical expertise."

experienced a cancer scare and medical treatment that made her test the soundness of medical ethics. Panicked, Ho told the doctors to do whatever they

ethics could prepare me for my own personal experience."

Living in St. Paul, Minnesota at the time, Ho agreed to numerous treatments. Now

under her U.S. employer's generous insurance plan.

"Despite the current emphasis on patient autonomy," observes Ho, "patients don't know what's

going on in the system and don't usually feel comfortable challenging the authority of medical expertise."

Her current research investigates how the changes in Canada's healthcare system are impacting the trust relationship between physicians and patients, and the public's perception of the medical system as a whole. In its first year, Ho's three-year study has received support from the Social Sciences and Humanities Research Council.

"The study also considers the meaning of patient autonomy when the public has little control or ownership over the medical or research enterprise," says Ho, who also serves as associate chair for the UBC Behavioral Research Ethics Board.

Patients are experiencing a much more fragmented model of medical care than in previous decades, says Ho. People no longer expect to have one family doctor over their lifespan. Instead, they may drop into walk-in clinics or need a healthcare team of different specialists. Other dramatic changes are in the offing with increasing commercialization and privatization of medical care.

Ho conducted a preliminary survey on how much Canadians trust what their doctors tell them. The 43 respondents were outpatients from a local hospital. She has also been conducting interviews with physicians on their perspectives.

"Most respondents seem to believe that physicians care as much about their patients' health as the patients themselves, and that they feel comfortable asking physicians questions," says Ho.

"However, respondents are somewhat split in their opinions of whether physicians respect patients' disagreement. They are also split on the impact of commercialization on physicians' judgment."

Once Ho has gathered enough data, she hopes to publish a book-length manuscript to help clinicians, healthcare administrators and policy makers to recognize the ethical implications of various changes in the system. **R**

PULP SCREEN ROTORS

continued from page 1

engineers Carl Ollivier-Gooch and Mark Martinez, along with industrial partners at Montreal-based Advanced Fiber Technologies Inc., took inspiration from aerospace technology and designed a family of uniquely shaped, hydrodynamic rotors that significantly reduce drag and operate at much lower speeds and power, while increasing the capacity and efficiency of the screen.

The technology was patented and licensed to Advanced Fiber Technologies and 100 new rotors were installed in 30 mills across Canada.

"The trial results were beyond everyone's expectations – reducing electricity consumption by 52 per cent compared to current state-of-the-art rotors," says Olson. "If all pulp screens used in B.C. mills were converted to the new rotor technology, an estimated \$8 million could be saved each year. Adopted nationwide, the industry could save \$20 million a year."

While the cost savings would increase the industry's competitiveness against new paper producers such as China, the reduced energy usage also translates into lower greenhouse emissions. The new technology could also cement Canada's leadership in pulp equipment manufacturing and further

diversify a sector that currently logs \$53 billion in sales and \$44 billion in exports per year.

As a result of the success in the mill trials, the research team has won BC Hydro's New

Technology of the Year Award (2007), the Natural Sciences and Engineering Research Council of Canada (NSERC)'s Synergy Award for Partnership and Innovation (2007), and the

British Columbia Innovations Council's Lieutenant Governor's Award (2008).

The work has also led to a \$2.2 million investment from the Natural Sciences and Engineering Research Council of Canada and a partnership with 11 industry partners including BC Hydro and most of the paper mills in B.C.

"There's a gap between electricity supply and demand in B.C. and we need to do more to conserve power," says Lisa Coltart, BC Hydro's director of Power Smart. "We're excited to contribute to research that will provide substantial energy savings while making the province a world leader in the field." **R**



Trial results of the energy-efficient rotors reduced electricity consumption by 52 per cent, says Olson.

BREADFRUIT*continued from page 1*

already having a big impact on the plant's distribution.

Last year, Murch's lab donated 7,500 trees for food security to tropical nations but she was quickly swamped with requests for more trees than she could possibly produce in the research facility. To produce enough trees, Murch has partnered with the NTBG, the government of Western Samoa, and a commercial horticultural company – Cultivaris in San Diego, California – to mass-produce and distribute trees.

"If our research can have a positive impact on food security and provide food in regions where there isn't enough food, that is a valuable contribution," she says.

In addition to distributing breadfruit trees in the tropics, Murch is investigating how to use the plant to improve nutrition in North America.

Breadfruit fruits can be dried and ground to produce gluten-free flour high in several vitamins and protein, making it potentially useful as a food additive, supplement or hypoallergenic alternative to wheat flour in North America.

Murch says that, overall, she wants to understand the role that plants play in human health. "Everything we eat comes from a plant or something that ate a plant," says Murch. "The nutrients and phytochemicals we consume can greatly affect our wellbeing. Understanding the mechanisms of a plant has a huge impact on how human health will progress through the next 50 years and on how we can feed and care for the growing population in the world."

Find out more about Susan Murch's breadfruit research at: web.ubc.ca/okanagan/chees/faculty/susmurch.html or www.ntbg.org/breadfruit **R**



Dr. Paul Courtright is living and working in Africa to treat and prevent blindness.

UBC eye doctors establish African centre

BY CATHERINE LOIACONO

To Dr. Paul Courtright, improving the lives of others means taking a hands-on approach to reducing blindness in Africa.

An ophthalmic epidemiologist in UBC's Department of Ophthalmology, Courtright studies the prevalence of eye disease among populations. Working in Africa, he has found there are many community issues that contribute to increased blindness – particularly for women.

"Research shows that women represent two-thirds of blind people in the world," says Courtright. "The high rate of blindness among women in Africa is as much of a societal issue as it is a need for adequate resources. For example, the social standing of women often prevents them from seeking treatment."

Courtright adds that women in some of these countries do not have decision-making authority within families and communities. This limits their access to surgical services, and the health care systems do little to enable individuals to come in and get treatment.

According to the World Health Organization the leading causes of chronic blindness include cataract, glaucoma, diabetic retinopathy, trachoma, and eye conditions in children. Three-quarters of all blindness can be prevented or treated.

Courtright's passion for research and treating blindness led to the establishment of The British Columbia Centre for Epidemiologic and International Ophthalmology (BCEIO) in 1995 at UBC. The centre is an international advocacy and teaching program that focuses on building local capacity to prevent and treat blindness, and provides teaching in research methods and data management.

"The BCEIO is instrumental in developing research and training tools," says Courtright. "However, to truly have an

impact and to enable change we needed to be on the ground working with local providers and communities and applying what we are learning."

His family moved to Moshi, Tanzania, and with help from the BCEIO and Seva Canada Courtright and his wife, Dr. Susan Lewallen, also an ophthalmologist at UBC, established the Kilimanjaro Centre for Community Ophthalmology (KCCO) in 2001.

"We are working at it from both ends, from a community perspective and from a healthcare provider perspective," says Lewallen. "At KCCO, we are not training surgeons, but rather we train people on how to set up programs that support

the number of cataract surgeries in programs serving rural communities can be increased by 300 per cent."

One of the projects, in collaboration with the BCEIO, involves selecting local female leaders who are trained in eye conditions and simple promotion techniques. They are asked to visit households, meet with and counsel family members and refer people in need of eye care services.

To address blindness in children, the KCCO and BCEIO set up a program for getting children to hospital and ensuring adequate follow up with glasses and low vision care.

"The most significant development during the last two years was expansion of a

"We are definitely making an impact on reducing blindness. But really, we want to change systems beyond eye care services..."

the surgeons in accomplishing their work. Surgeons on their own really can't do much -- they need to be supported by a team that keeps the clinic running smoothly and conducts outreach to bring patients in from the rural communities."

KCCO is the only training institution for community ophthalmology in Africa dedicated to reducing blindness. It serves 18 eastern African countries with a population of close to 210 million, from Egypt to South Africa. KCCO directs critically needed projects and collaborations to bring eye-care treatment and preventative services to surrounding rural communities.

"The demand for training has grown so that doctors and other eye care professionals have come from countries across the continent - Ghana to Eritrea to Madagascar," says Courtright. "Some of the programs assisted by KCCO have seen two and three-fold increases in eye care services provided. Our work has already demonstrated that

community-based program to provide long-term post-operative care for children with cataracts," says Ken Bassett, professor and division head of the BCEIO.

The next step for Courtright is to bring blindness and gender issues to the forefront of the international agenda. He, along with other colleagues, will be participating in a meeting with other international leaders in Washington, D.C. next spring.

"In many ways treating blindness has become a tool and entry way into the system," says Courtright. "We are definitely making an impact on reducing blindness. But really, we want to change systems beyond eye care services – primarily at the health provider level but also at the community level."

The work of Courtright and Lewallen has not gone unnoticed. The world's largest association of eye care professionals, the American Academy of Ophthalmology, awarded them the 2008 International Blindness Prevention Award. **R**

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Check out this energy-tracking device

BY GLENN DREXHAGE

As energy usage continues to be a hot topic, UBC Library and the Sustainability Office are teaming up in a unique effort to cool consumption.

In November, the Library began lending devices that help people keep track of how much energy is used – and often wasted – by typical household items such as laptops, monitors, hair dryers and stereos.

The brick-sized devices, dubbed Kill A Watt electricity usage monitors, are easy to use. They simply plug into a wall outlet, and the plug of the component being tested is then inserted into the monitor, which has an LCD display that counts consumption by the kilowatt hour.

The idea is to make people more aware of their energy consumption habits – and in doing so, encourage them to take steps to curb usage and save money.

Learning Centre are participating in the project.

Crema adds that the Kill A Watt gadget will also be used to monitor energy consumption within the UBC Library system. “This helps raise individual awareness, and I think that will spread throughout the Library,” she says.

According to the Princeton Packet, a Princeton, New Jersey publication, that town’s public library will save about US \$6,500 a year thanks to the Kill A Watt devices, which it also lends to patrons.

While some public libraries in Canada and the U.S. have been lending the tools, it appears that no university library in North America had undertaken such a project – until now.

While Henderson’s job focuses mainly on cutting consumption among staff, students and faculty at UBC, he’s pleased that community users of UBC Library can also take out the units for home use.

The brick-sized devices, dubbed Kill A Watt electricity usage monitors, are easy to use. They simply plug into a wall outlet, and the plug of the component being tested is then inserted into the monitor. . . .

Leonora Crema, UBC Library’s Head of Borrower Services, tried a Kill A Watt device in her office and home for a few days. She tested her office monitor and printer overnight, and now flicks off that equipment when the day is done (the computer needs to stay on for ongoing backups and updates). She has also re-routed her home computer electronics to a power bar so they can be switched off more easily. “The Kill A Watt effort is all about raising awareness as individual power consumers,” she says.

Orion Henderson, Associate Director of Climate Change and Energy at UBC’s Sustainability Office, has a similar view. “The whole idea behind it is you cannot manage what you cannot measure,” he says. “You’re almost creating a bit of a game. You can really spark people’s interest.” Indeed, he adds that such “smart metering” practices can lead to as much as a 20 per cent reduction in energy consumption.

So far, 10 Kill A Watt units have been purchased for \$36 apiece. Stickers fastened to the items feature a URL (www.sustain.ubc.ca/energy.html) where users can find the instructions.

Each device is boxed and available for lending to card-carrying UBC Library users for two weeks. Koerner Library, Woodward Biomedical Library and the Irving K. Barber



Crema, meanwhile, feels that libraries will continue to expand their lending services in the future. She notes that UBC Library already has a successful laptop-lending program, adding that camcorder loans are slated to begin in 2009.

“The role of libraries has always been to make different kinds of technologies more widely available,” she says.

The Kill A Watt program will run in its current form throughout the coming winter months. If it’s deemed to be a success, Henderson says more units may be purchased and UBC Library will expand its effort. **R**



UBC dentist Chris Zed and alumnus Mark Parhar are leading dental care for the 2010 Winter Games.

2010 athletes to get top dental care

BY BASIL WAUGH

The closest to gold and silver that dentists Chris Zed and Mark Parhar usually get is in their patients’ dental work.

But that will change in 2010, when their patients are wearing gold, silver and bronze medals around their necks.

“The Olympics and the Paralympics are about excellence and that is the standard we are striving for with our dental care programs,” says Zed, UBC Faculty of Dentistry, who is leading dental care with Parhar, a UBC alumnus, on behalf of the Vancouver Olympic and Paralympic Winter Games organizing committee (VANOC).

With a new made-in-B.C. oral cancer screening technology, two state-of-the-art dental clinics under construction and prevention programs, Zed and Parhar are working to give Olympians and Paralympians more than your average dental checkup and offer UBC dental residents a learning opportunity to remember.

Zed and Parhar join a number of UBC faculty engaging with the 2010 Games, including sports physicians Dr. Jack Taunton and Dr. Bob McCormack, Chief Medical Officers for the Games and Canada’s Olympic Team, respectively, and Canadian Olympic Committee CEO Chris Rudge, who recently joined UBC as an adjunct professor to advance Olympic studies.

Ironically, athletes’ pursuit of perfection may negatively impact their oral health, says Zed, UBC Dentistry’s Assoc. Dean of Strategic and External Affairs, who leads a number of outreach projects with First Nations and in Vancouver’s Downtown Eastside. “Athletes’ demanding schedules often trump a regular trip to the dentist, so we try to do as much as possible during the Games,” he says.

“Standards around oral health care can also really vary internationally,” says Parhar, who led dental care for the 2006 World Junior Hockey Championship and is team dentist for the Vancouver Giants hockey team.

It is no surprise, then, that dentistry is historically the second busiest medical service at Olympic and Paralympic Games. During the four-week event, Parhar expects their dental team

balm with UV protection and another, tailored to athletes in high-contact sports, will extol the benefits of high-quality mouthguards.

Zed, who helped design UBC’s state-of-the-art Nobel Biocare Oral Health Centre, says the 2010 Winter Games are a unique opportunity for learning and research. Dentistry faculty and students will be studying oral health trends to pinpoint problem areas and

“Outdoor winter athletes are at risk for cancers of the lip and mouth because the sun’s UV rays are magnified by the snow,” says Dr. Chris Zed, UBC Faculty of Dentistry.

to treat more than 500 patients for everything from routine toothaches to severe sports-related oral trauma.

Zed and Parhar are using the Games to showcase the B.C. College of Dental Surgeons’ world-leading oral cancer screening guidelines, which UBC research helped to produce. For the first time, Games dental staff will use veloscopes, a two-year-old B.C. technology that floods patients’ mouths with light, to help detect and remove oral cancers before they spread.

“Outdoor winter athletes are at risk for cancers of the lip and mouth because the sun’s UV rays are magnified by the snow,” says Zed, noting that 20 per cent of athletes will receive oral cancer screening. “There are also anecdotal reports of tobacco-chewing in some of the alpine sports.”

Zed and Parhar are also developing a number of awareness programs. One will instruct athletes on the health benefits of sunscreen and lip

improve future care. The dental program’s 14 student residents at Vancouver General Hospital will help with emergency care, while other students are helping to develop cancer and mouthguard awareness programs.

As for the more than 30 volunteer dentists they have recruited from around Canada, Zed says: “This is all about us giving back to the community. By taking dentists out of their day-to-day routine, we hope to give them new skills and a better understanding of people and dentistry from around the world.”

Parhar says he is happy he has rekindled his relationship with his alma mater. “UBC gave me a really well-rounded education and the tools to help me to be successful in dentistry and the community. It really laid a great foundation for me to build upon.”

For more information, visit UBC’s 2010 web portal at www.ubc.ca/2010 **R**

PHOTO: MARTIN DEE



UBC Creative Writing Adjunct Professor Deborah Campbell takes in the view while on a writing assignment in the United Arab Emirates.

PHOTO: COURTESY DEBORAH CAMPBELL

Weaving the personal and political: New writers drawn to genre

BY LORRAINE CHAN

Krissy Darch got into UBC's Creative Writing Program to practice alchemy. She aims to transform 400 pages of raw notes into a lucid work of literary nonfiction – a genre also known as participatory or

immersion journalism.

An MA student, Darch arrived in Vancouver this fall with a suitcase full of journals about her experiences working and living in Accra, the capital of Ghana.

"I came to the Creative Writing Program for mentorship

and support to edit this huge amount of material," says Darch, who has a BA from the University of Ottawa in visual arts. She will complete the book as her MFA thesis.

Darch is one example of the growing waves of young writers intent on telling stories that weave the personal with the political – a trail blazed by authors as diverse as Joan Didion, Hunter S. Thompson, Tom Wolfe, Ryszard Kapuscinski, David Foster Wallace and George Orwell.

Student interest in the genre has exploded, notes Deborah Campbell, one of four instructors teaching nonfiction writing in UBC's Creative Writing Program. A freelance journalist, Campbell's work has appeared in Harper's, The Walrus, The Economist, Ms., New Scientist and The Guardian.

Campbell says enrolment has more than doubled over the past three years, with 25 graduate

Darch saw these worlds colliding during two separate eight-month periods working as an intern and volunteer in Ghana. Her first assignment, from a Canadian non-government organization, had her teaching basic literacy and visual arts skills to children and adults. Her students were mostly women who eked out a living by working as seamstresses, housekeepers or as market traders selling basic household items.

Darch lived close to the community library where she taught. She noticed, however, that many volunteers stayed in compounds or in Accra's affluent neighborhoods, getting to and from work in air-conditioned SUVs, rather than the city's crowded buses.

Darch has chosen for her working title an apt proverb from Africa's Ivory Coast – "The Stranger Has Big Eyes" – that alludes to the blinkered view of many Westerners. Her book

This Heated Place: Encounters in the Promised Land, provides a literary journey inside the Israeli-Palestinian conflict.

Able to speak French, conversational Farsi, Hebrew and some Arabic, Campbell immerses herself in the societies she writes about. She spent more than two months living among Iraqi refugees in Syria for her article Exodus: Where will Iraq Go Next? The article appeared in the April 2008 issue of Harper's and was recognized this fall with the Dave Greber Freelance Writers Magazine Award.

Campbell's classes provide students grounding in the basics of journalism, with assignments that focus on interview and research skills combined with narrative storytelling techniques.

She frequently counsels students not to confuse the "I" with the "eye" – the use of first-person narrative must always be justified. "If you're telling the reader you're hungry or tired,

"Many of them have a global view and an interest in bringing a writer's eye to real-world issues."

students currently in the program's two nonfiction classes.

"Many of them have a global view and an interest in bringing a writer's eye to real-world issues," explains Campbell, a Vancouver native and UBC alumna whose international background includes studies at the Sorbonne and Tel Aviv University.

For Darch, the attraction is being able to explore ideas of neo-colonialism, and the phenomenon of "slum tourism," in which local people see privileged foreign aid volunteers and business expats "waltz in and waltz out" in ever increasing numbers.

Between 2005 and 2008,

also addresses the fresh-faced and idealistic youth who arrive hoping to save the world, but receive some harsh life lessons.

"Every year, NGOs send new waves of workers," says Darch. "A lot of them are young women who've never experienced gender inequality or abject poverty. They often don't realize when local men want to take advantage of them."

Darch says she's grateful to have Campbell's guidance "as a working writer" to capture these myriad realities. Campbell has earned a reputation for distilling complex global issues into truthful narratives, particularly about the Middle East. Campbell's 2002 book,

that must in some way serve the story."

When critiquing student work, Campbell says she's careful to stress that no amount of time at the keyboard can replace true-life experience.

"The students who really flourish are inquisitive," says Campbell. "They're able to look at the world from more than one perspective."

The workshop style classes provide instant feedback, which Darch has found extremely useful. "This is a group of some of the most discerning readers you can find. You always end up walking away seeing things in your work you hadn't seen before, positive and negative." **R**

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PHOTO: MARTIN DEE

Hannes Dempewolf believes the best way to preserve rare plant varieties is by encouraging their agricultural use.

Project cultivates ancient chocolate delights

BY BRIAN LIN

Profitable gourmet chocolate and biodiversity conservation aren't mutually exclusive, according to UBC graduate student Hannes Dempewolf.

And the World Bank agrees, to the tune of \$200,000.

Dempewolf and other collaborators from UBC and Bioversity International, a non-profit research organization based in Italy, were among 22 winners – out of 1,800 proposals

“Currently, the majority of cocoa farmers around the world grow high-yielding, more pest-resistant varieties called Forastero, resulting in a lack of genetic agro-biodiversity, whereas cocoa plants in Trinidad and Tobago are either the ancient Criollo or a uniquely Trinidadian variety called Trinitario, a hybrid of Criollo and Forastero,” says Dempewolf.

“If we could demonstrate the economic potential of these ancient varieties and offer

the Dept. of Botany, will work with cocoa farmers and experts in Trinidad and Tobago and Italy to create a database of cocoa genetic diversity. They will also develop standardized testing methods for varieties grown in local farms and plantations and in the International Cocoa Genebank, located in St. Augustine in Trinidad and Tobago.

While preserving rare plant varieties in gene banks is important, Dempewolf says it doesn't allow for a species to evolve with the changing environment, a point especially poignant with effects of global warming.

“The best way to conserve agricultural biodiversity is through consistent cultivation of different varieties. To accomplish that, we have to make it profitable,” says Dempewolf, who got interested in international development work when he came to UBC several years ago as an international exchange student.

The idea, and the UBC team's expertise in plant genomics, caught the attention of World Bank President Rober Zoellick when Dempewolf presented the proposal to judges at a sort of “idea marketplace” along with 100 finalists.

“He asked very in-depth questions about the science behind our proposal,” recalls Dempewolf, who was invited to lunch with Zoellick along with representatives from two other winning teams, a rarity according to World Bank staffers.

“We had a once-in-a-lifetime opportunity to discuss our ideas with one of the top economists in the world,” says Dempewolf. “The whole experience was surreal.”

“If we could demonstrate the economic potential of these ancient varieties . . . we could create strong incentives to conserve – and even increase – agricultural biodiversity in the region.”

– of the 2008 Development Marketplace competition, sponsored in part by the World Bank and the Bill and Melinda Gates Foundation.

The theme of this year's competition encourages creative solutions in agricultural development, and funds pilot projects with the goal of establishing self-sustaining, non-profit organizations in the developing world.

The team proposes developing inexpensive and reliable ways to genetically identify and authenticate varieties of cocoa beans that date back to the ancient Mayan and Aztec times. These beans could produce high quality “boutique flavours” for discerning chocolate connoisseurs and fetch a higher market price. This would encourage farmers to continue to cultivate them.

inexpensive and reliable ways for growers, certifiers and buyers to authenticate them for the market, we could create strong incentives to conserve – and even increase – agricultural biodiversity in the region.”

To achieve this, the team proposes authenticating varieties through a part of a plant's DNA, which is located in chloroplasts – the structures in which photosynthesis takes place. Unlike in typical chromosomes, the DNA in chloroplasts is inherited only through the maternal line when the plant reproduces, and thus remains more distinct across generations. “They are unique to most varieties, like fingerprints are to humans,” says Dempewolf.

Over the next two years, Dempewolf and his PhD advisors, Quentin Cronk in the Faculty of Land and Food Systems and Loren Rieseberg in

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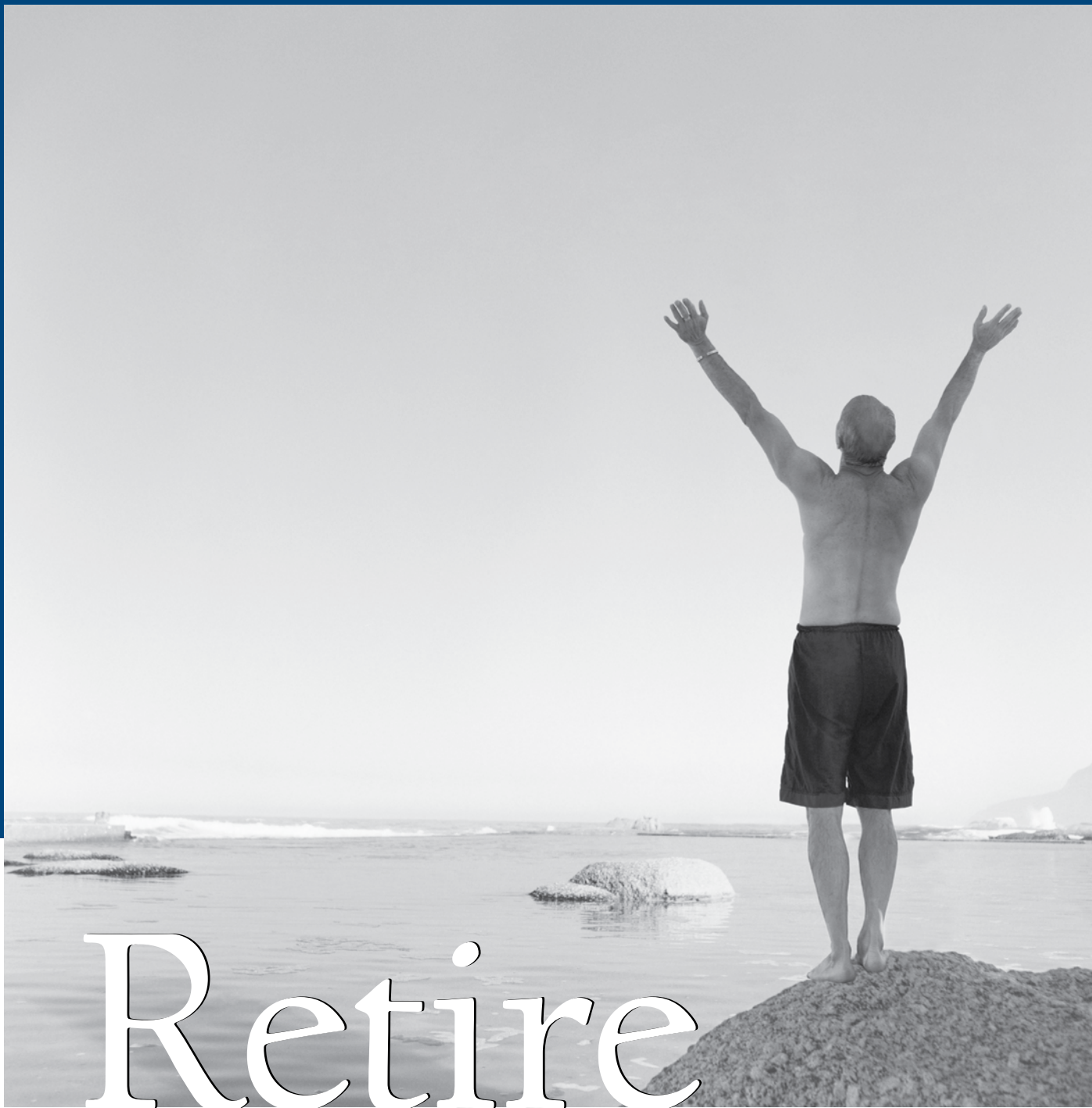
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